ENGINEERING, SOFTWARE ENGINEERING, COMPUTER AND INFORMATION SCIENCE, COMPUTER ENGINEERING: A COMPARISON AND CONTRAST

ENGINEERING

Building useful products for real people. The development of solutions to practical technical problems within economic, social and technical constraints under conditions of uncertainty.
Examples: bridges, highways, skyscrapers, automobiles, dams, nuclear reactors, power grids, airplanes, space shuttles, lunar bases, computers.

SOFTWARE ENGINEERING

The engineering of computer software systems: requirements, design, construction, management and evolution of software for use by others in industry, office and home. It applies the scientific background acquired in the foundations of Computer and Information Science to the development, operation, and maintenance of reliable, efficient, large-scale systems.
Examples: Windows 2000, space shuttle launch, flight, and landing software systems, microcontrollers for automobile engines, ATM software systems, C++, Internet and World Wide Web, scanning systems in retail outlets, ordering systems for on-line companies.

COMPUTER AND INFORMATION SCIENCE

A science with a primary focus of discovering new knowledge, with strong foundations in theory and selected application domains. This field is the basis for software engineering, just as chemistry forms the basis for chemical engineering or as physics forms the basis for electrical engineering.
Examples: theory of data structures, algorithms, programming languages and domains such as networks, operating systems, compilers, databases, architecture, information systems.

COMPUTER ENGINEERING

The engineering of computer hardware systems, with special emphasis on the design. It applies the scientific background obtained in physics and engineering background of electrical engineering.
Examples: Intel Pentium III processor, CRAY T3-E, Motorola 68000 chip, TCP/IP chips, customized hardware controllers.

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